

Towards a new governance for adaptation: perspectives for non-state actors and the private sector

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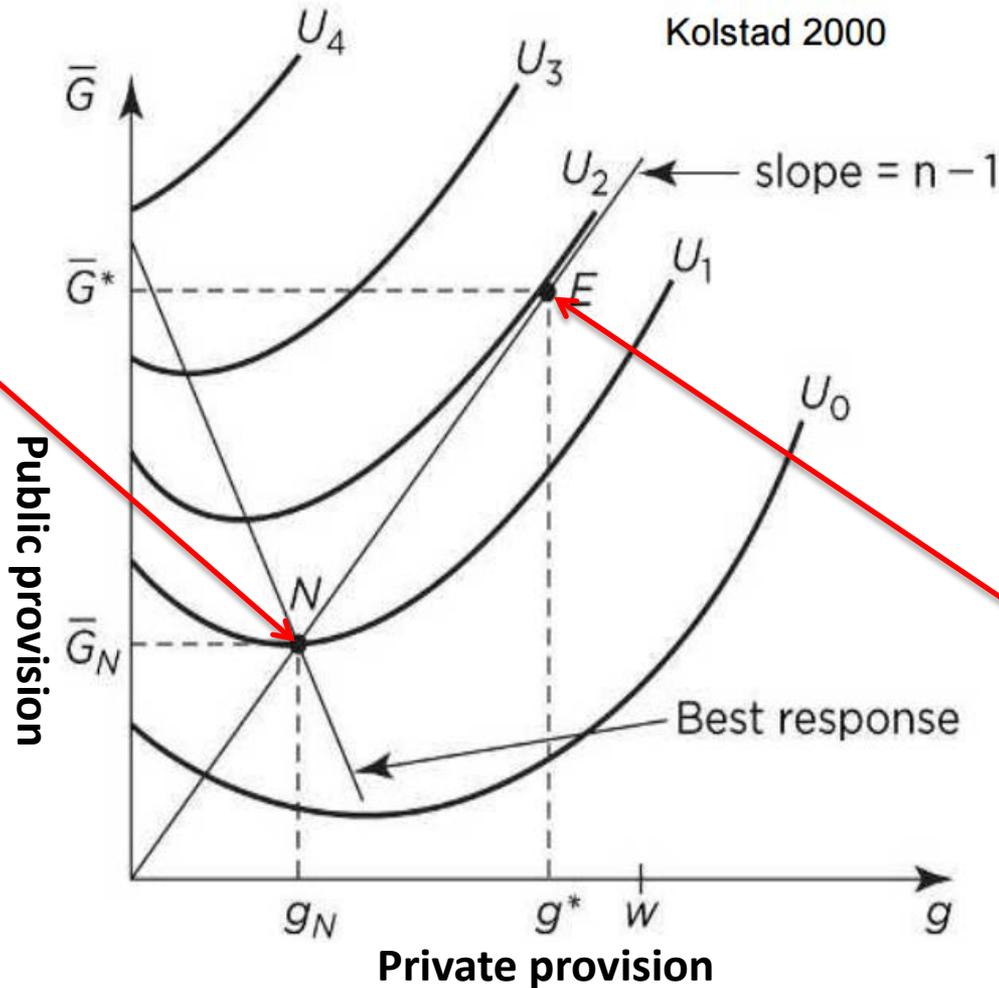
Structure

- Resilience as a «climate public good»
- Crisis in public provision of public goods and «climate adaptation goods»
- New actors in private climate policy for resilience
- Metrics for private provision of «climate adaptation goods»
- The role of information in the private provision of «climate adaptation goods»
- Policies for incentivising private adaptation
- Conclusions

Resilience as a «climate public good»

- **Public good (pure):** non excludible; non-rival
- **Climate good:** any good linked to climate quality that participate in increasing the wellbeing of one or more individuals
- **Resilience to climate change and impacts:** attitude of a system to modify its status in t_0 in order to live with the modified conditions in t_1 , by ensuring a level of efficiency at least equal than in t_0 . Conservation or increase in efficiency is a result of adaptation actions (e.g. risk reduction, insurance contracts, behavioural change)
- **Resilience as a public good?** it benefits sometimes indirectly a territory or social group , it is non-rival in consumption, finds a limit in geographical space (partial excludability: quasi-club good)
- Some public goods are supplied by private, non-state actors and communities, including public climate goods (Ostrom, Bergstrom et al. 1986) others are supplied jointly with other goods (green goods) (es. Carbon Footprint Programmes for commercial businesses)

Kolstad 2000



1. Usually private provision of public goods is a reaction to the quantity of public goods (G) inside a community (e.g. provided by the State), and aims at reaching some min level of wellbeing

2. But a larger private provision of public goods can increase the wellbeing enjoyed by the whole community, basically due to non-rivalry in consumption within the community

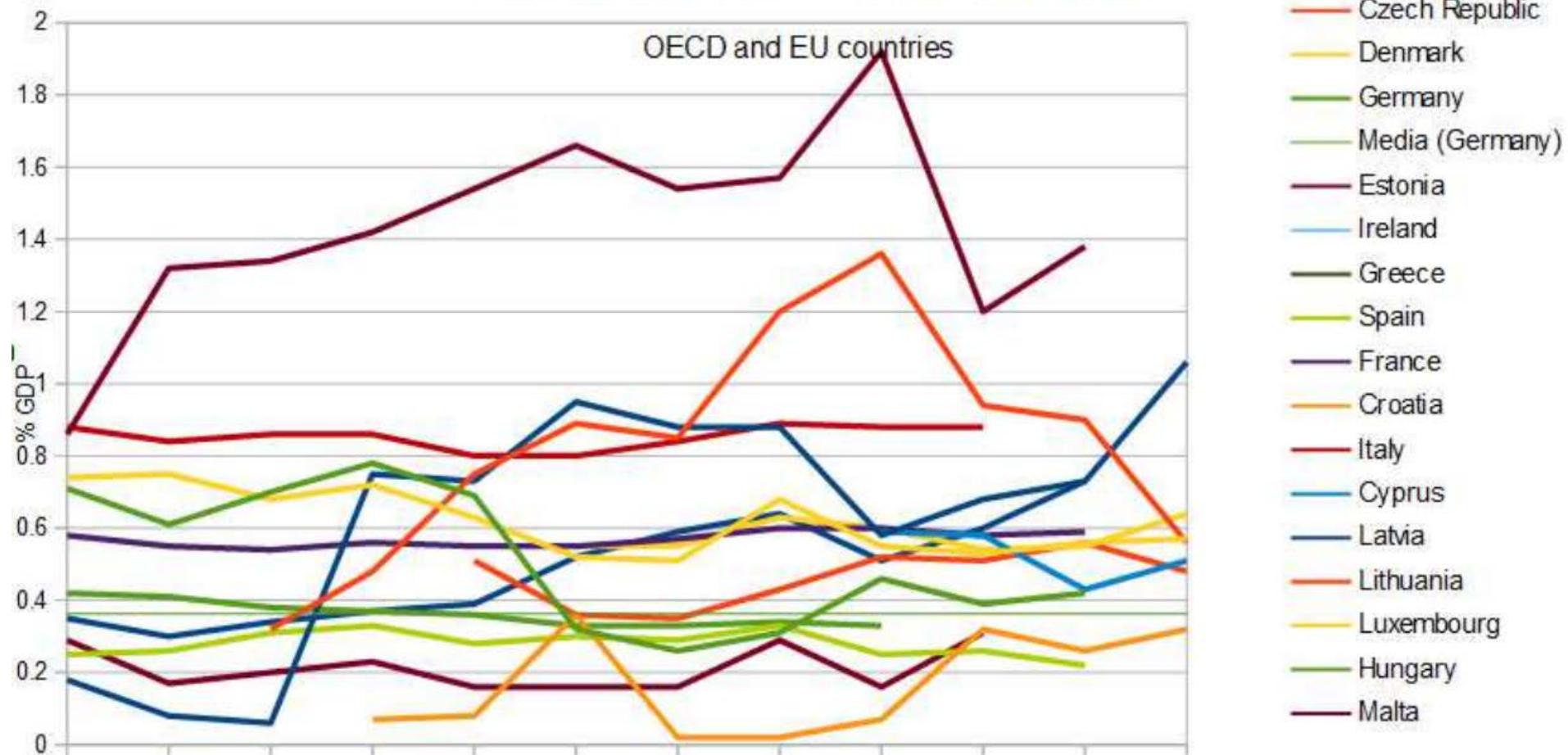
Policy remarks:

- 1) Information on benefits of a larger provision ($U_2 > U_1$) is scarce
- 2) Incentives to private provision of g can help achieve a larger provision

The crisis in public provision of climate adaptation goods

- Public finance crisis: reduction of environmental public expenditure vs. increased demand for action for protection
- Concentration of public expenditure on infrastructures and integration of risk reduction measures in other works also with institutional investors (“Italia Sicura”: € 8.3 mld in 5 years)
- Local reach and private/microeconomic adaptation for self-protection, when risk perception makes relatively efficient a private action, if shared by the actors (bottom-up)
- Scarce immediate benefits (actors don't get the largest benefit) and insufficient motivation to long-term cooperation needed for resilience that requires corrective actions (Tompkins et al., 2012)

Environmental protection expenditure (public)



Distribution asymmetries between costs and the benefits of private adaptation

- Geographic flood risk redistribution to minimise total social damage (infrastructure expenditure) delivers an increase in risk for residents and businesses in some areas (e.g. rural areas subject to floods)
- Requires management and balancing of interests (“Living with floods” & “Making Space for Water” in UK, “Sustainable floods management” in Scotland).



- Critical demand for policy on tools, contracts and incentives to motivate individual actions and private participation to the provision of climate adaptation (public) goods

Non-state actors and provision of resilience

- 1. Business:** global platforms on environmental reporting would allow accounting however it is unavailable for mitigation and metrics limitations still exist on adaptation. Moreover new voluntary standards for adaptation are developing (ISO)
- 2. The Financial Sector:** public and private investment, institutional investors to leverage private capital and strategies for macroeconomic development consider climate risk
- 3. Local governments:** Municipality networks could account for adaptation outcomes (EU Covenant of Mayors, Compact of Regions, C40, etc.)

1. Business and adaptation

- **Global Reporting Initiative – KPMG (2007).** Reporting the Business Implications of Climate Change in Sustainability Reports
- **Canada's International Development Research Centre (IDRC), Business for Social Responsibility (BSR) (2016).** Mobilizing Private Sector Investment in Adaptation to Climate Change (Research project, ongoing)
- **Caring for Climate (2015).** The business case for responsible corporate adaptation: strengthening private sector and community resilience.
- **ISO: “Climate neutrality and resilience”. ISO 26000, SC7.** Standards on green infrastructures, cities, water, food, energy and transportation



Sustainability reporting evolution and contents

Evolution in the number of sustainability reports presented under GRI



Source: GRI Database 2016

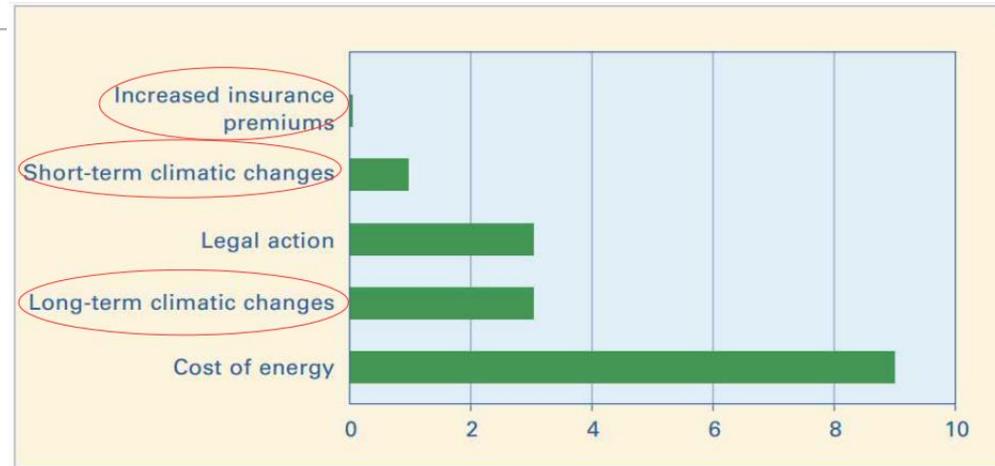


Figure 7: Number of companies that reported on risks arising from climate change

Does the company's sustainability report include:

- potential future litigation, claims or legal action related to climate change?
- the implications of increased insurance premiums due to climate change?
- the implications of disruptions to business (for example to transport or business process) due to climate change?
- current or future increased cost of energy related to climate change?
- the implications of one or more of the following physical changes related to climate change:
 - floods? (including storm surges and flash floods from intense rainfall, but not Tsunami related floods)
 - droughts?
 - strong wind?
 - heat waves?
 - storms, including hurricanes, cyclones, typhoons, hailstorms, snowstorms and other types of storms?
 - increased forest fires or bush fires?
 - longer term changes in weather patterns?
 - increased or decreased rainfall?
 - decreases in the availability of water from rivers, dams, lakes, etc?
 - the implications of rising sea levels?

KPMG, GRI (2007)

2. The Financial Sector



10.98	10.98	10.98	10.98
18.59	18.59	18.59	18.59
20.45	20.45	20.45	20.45
25.10	25.10	25.10	25.10
28.17	28.17	28.17	28.17
35.58	35.58	35.58	35.58
34.52	34.52	34.52	34.52
38.80	38.80	38.80	38.80
29.44	29.44	29.44	29.44
29.00	29.00	29.00	29.00
32.38	32.38	32.38	32.38
44.50	44.50	44.50	44.50
43.58	43.58	43.58	43.58
48.79	48.79	48.79	48.79
26.07	26.07	26.07	26.07
26.17	26.17	26.17	26.17
28.55	28.55	28.55	28.55
10.19	10.19	10.19	10.19
10.15	10.15	10.15	10.15
11.15	11.15	11.15	11.15
16.00	16.00	16.00	16.00
15.72	15.72	15.72	15.72
17.60	17.60	17.60	17.60
15.32	15.32	15.32	15.32
15.30	15.30	15.30	15.30
16.65	16.65	16.65	16.65
6.07	6.07	6.07	6.07
6.25	6.25	6.25	6.25
6.68	6.68	6.68	6.68
33.71	33.71	33.71	33.71
33.50	33.50	33.50	33.50
36.40	36.40	36.40	36.40
26.22	26.22	26.22	26.22
25.86	25.86	25.86	25.86
28.50	28.50	28.50	28.50
32.06	32.06	32.06	32.06
31.98	31.98	31.98	31.98
33.96	33.96	33.96	33.96
58.99	58.99	58.99	58.99
58.10	58.10	58.10	58.10
62.83	62.83	62.83	62.83
6.20	6.20	6.20	6.20
6.51	6.51	6.51	6.51
6.51	6.51	6.51	6.51
21.48	21.48	21.48	21.48
20.82	20.82	20.82	20.82
23.30	23.30	23.30	23.30
116.15	116.15	116.15	116.15
115.50	115.50	115.50	115.50
124.50	124.50	124.50	124.50

Sviluppo di competenze a supporto di interventi infrastrutturali, risk management e cooperazione tecnologica (ICCF 2015) • Copertura finanziaria per la protezione del valore, la promozione di investimenti in settori a basso rischio, soluzioni per i settori esposti al rischio • Nuovi prodotti finanziari incentivanti l'adattamento autonomo di privati e imprese (UNEP-FI 2015, EBRD SEI 2015).

- Stanziamenti pubblici e da parte di investitori istituzionali (in Italia: CDP) in grado di mobilitare capitale di "leva" rispetto a capitali privati • Misure economicamente efficienti per affrontare rischi climatici individuati e sostenere lo sviluppo economico "tout court" delle regioni interessate da tali misure (McKinsey 2009, EBRD 2015). • Assicurazioni per l'adattamento in settori specifici (es. turismo invernale, agricoltura, etc.) e premi legati all'esposizione al rischio climatico (C4C 2015)

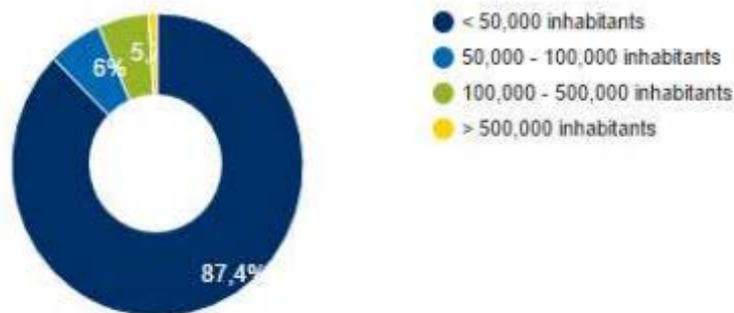
3. Local governments for adaptation



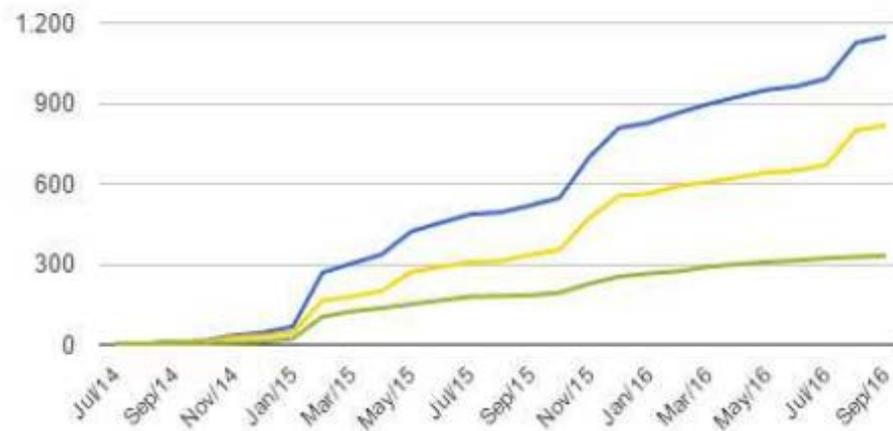
- Nuovo Patto dei Sindaci (2015): 6,900 firmatari , 213,1 milioni di abitanti in UE – Efficacia in mitigazione – Sfida della misurazione dell'adattamento – Fusione con MayorsAdapt
 - Cities for Climate (C40)
 - OpenData (CDP): rischi e opportunità di business
 - Altri network di governi locali e subnazionali (ICLEI)

The New EU Covenant of Mayors

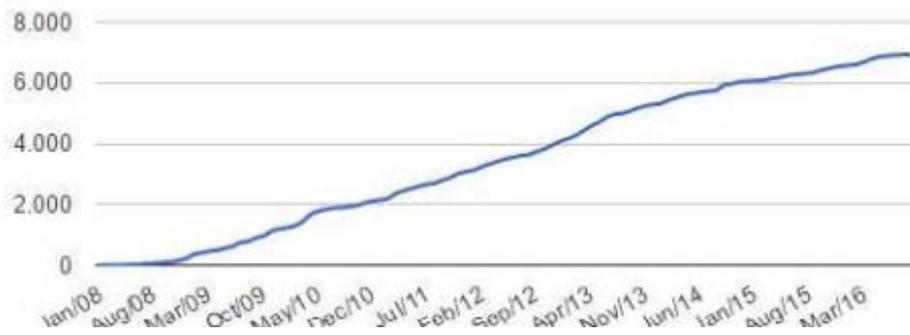
Signatories' profile



Monitoring over time



Signatories over time



Mayors Adapt Monitoring & Reporting Template

*: compulsory

	Minimum Reporting Requirements			Link to Tab
	At the registration stage	Within 2 years	Within 4 years (and then every 2 years)	
Signatory profile	*	*	*	
Adaptation Scoreboard	*	*	*	
Strategy	optional	*	*	
Risks and Vulnerabilities	optional	*	*	
Actions	optional	optional	(min. 3 Key Actions)	
Synthesis Report				
Indicators				

	Mandatory fields
	Optional fields
	Definition or further instructions (visible when clicking)

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ANNEX - Indicators

Concerned Sector(s)	Outcome-related indicators	Unit	Base year	Expected change
Buildings	% of (public/residential/tertiary) buildings retrofitted for adaptive resilience	%		[Drop-Down]
Transport, Energy, Water, Waste, ICT	% of transport/energy/water/waste/ICT infrastructure retrofitted for adaptive resilience	%		[Drop-Down]
Land Use Planning	% change in green & blue infrastructure/areas (surface)	%		[Drop-Down]
Land Use Planning	% change in connected green and blue areas	%		[Drop-Down]
Land Use Planning	% change in sealed surfaces / soil moisture level	%		[Drop-Down]
Land Use Planning	% change in runoff of rainwater overflows (due to change in soil infiltration)	%		[Drop-Down]
Land Use Planning	% change in shading (& related change in the Urban Heat Island effect)	%		[Drop-Down]
Land Use Planning	% of coastline designated for managed realignment	%		[Drop-Down]
Water	% change in water loss (e.g. due to leakage in the water distribution system)	%		[Drop-Down]
Water	% change in storage of rain water (for reuse)	%		[Drop-Down]
Waste	% change in solid waste collected / recycled / disposed of / burned	%		[Drop-Down]
Environment & Diversity	% of habitats restored / % of species protected	%		[Drop-Down]
Agriculture & Forestry	% change in crop yield due to adaptation measures	%		[Drop-Down]
Agriculture & Forestry	% change in water consumption for agriculture/irrigation	%		[Drop-Down]
Agriculture & Forestry	% of forest restored	%		[Drop-Down]
Tourism	% change in tourist flows	%		[Drop-Down]
Tourism	% change in tourism activities	%		[Drop-Down]
Other	% change in costs for recovery and reconstruction associated with extreme climate events	%		[Drop-Down]
Other	€ investment in adaptation research (e.g. soil conservation, water/energy efficiency...) by the city / by other stakeholders	€		[Drop-Down]
Other	€ investment in education / in health & emergency systems by the city	€		[Drop-Down]
Other	Number of awareness-raising events targeting citizens and local stakeholders			[Drop-Down]
Other	Number of training sessions targeting staff			[Drop-Down]
Other	Number of users/stakeholders involved in adaptation process measure decision making through community participatory			[Drop-Down]
Other	Other [please specify]			[Drop-Down]

Risks from climate change identified and reported by city governments. Includes a list of the anticipated effects of climate



The economic opportunities arising from climate change, as assessed by C40 city governments. Contains a description of how the city government is seeking to maximize the opportunities presented.



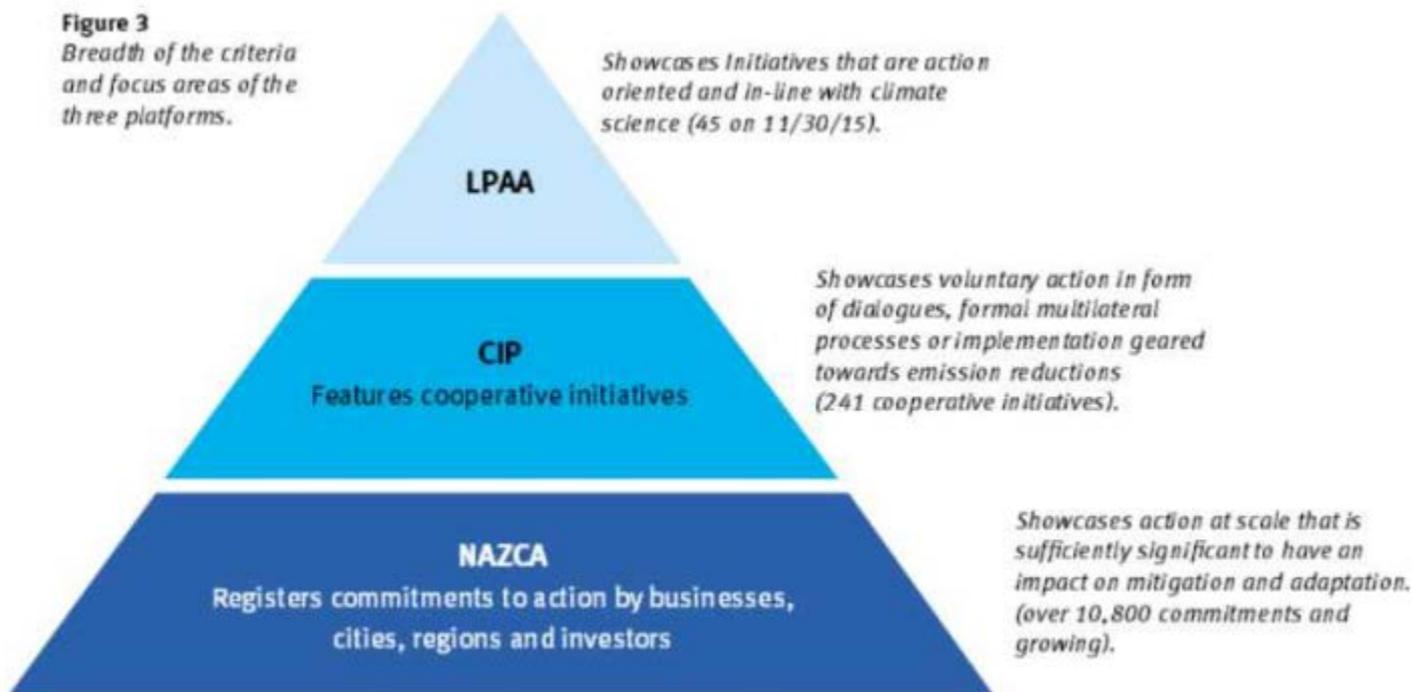
http://www.c40.org/research/open_data

Measuring the private provision of climate adaptation public goods

- Measure of provisions
 - Identification and dispersion of providers
 - Scarce information concerning:
 - a) existence of supply
 - b) Entity of supply
 - c) identity of providers
 - d) Local georeferencing (relevant for adaptation)
 - Sources include few voluntary databases (UNFCCC) often scattered and developed at territorial levels
 - No need for global accounting for assuring efficacy in adaptation
- (The problem is common also to public mitigation goods being privately supplied)

UNFCCC Platforms

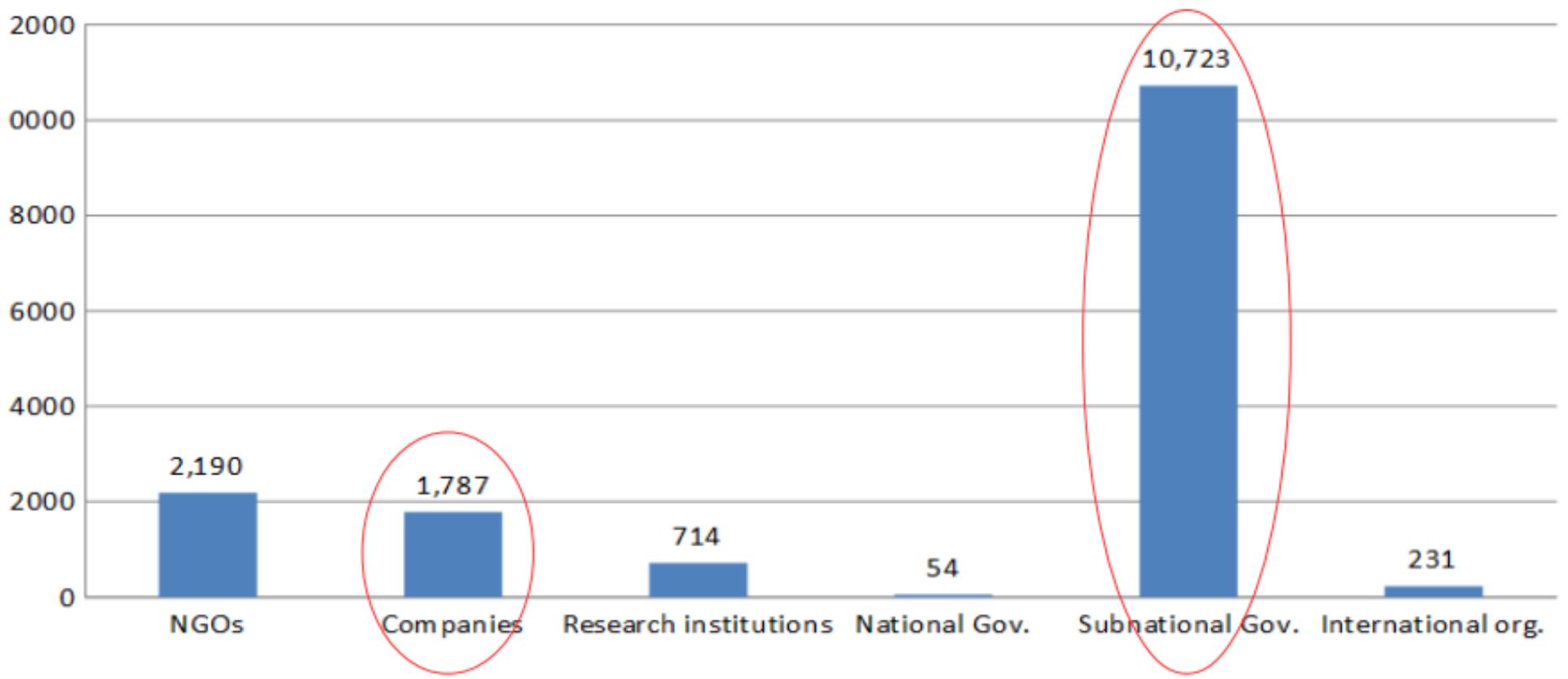
Figure 3
*Breadth of the criteria
and focus areas of the
three platforms.*



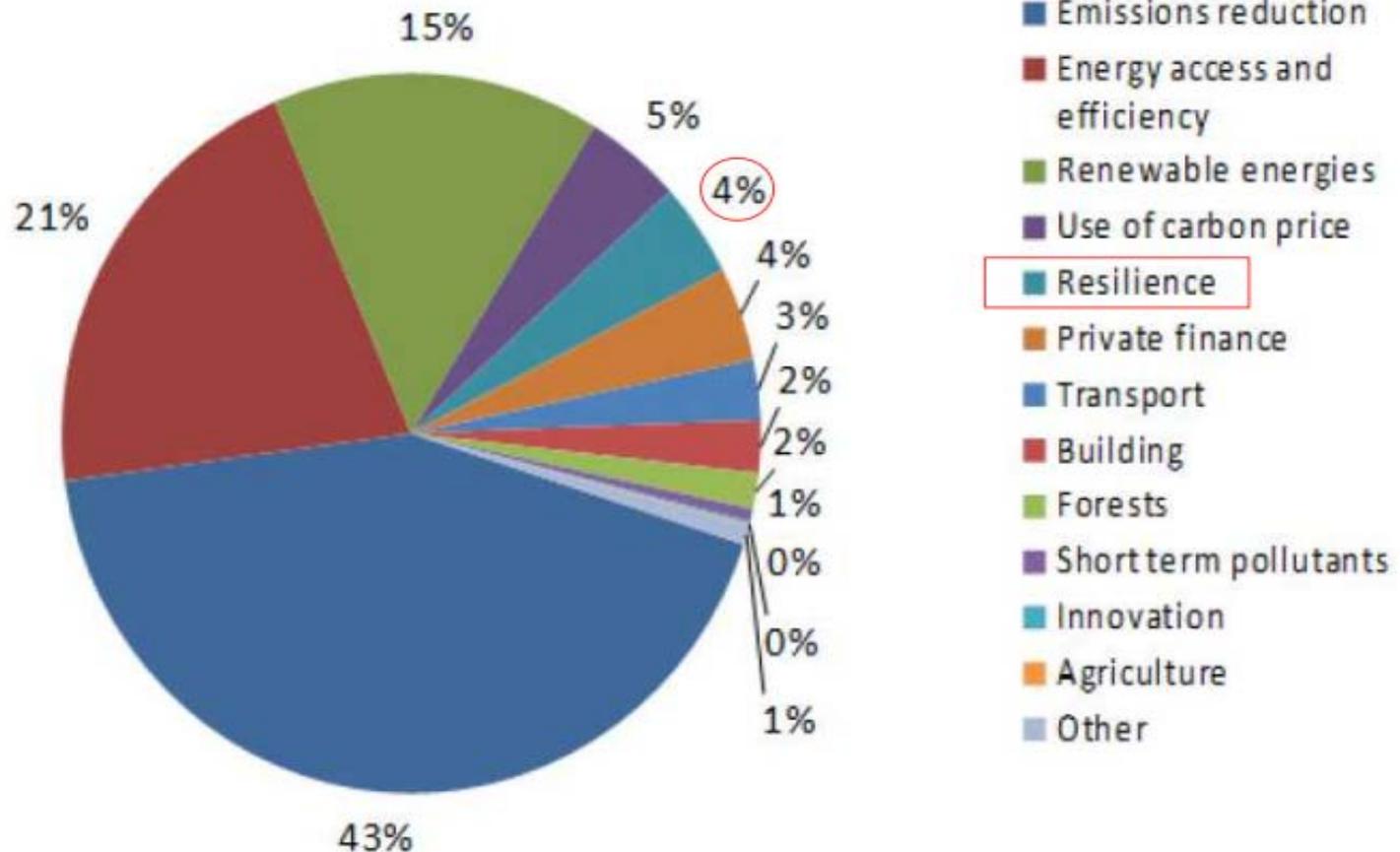
- + C40

Source: Gardiner et al. 2016

International Climate Initiatives from the CIP database (by type of participant, # values)

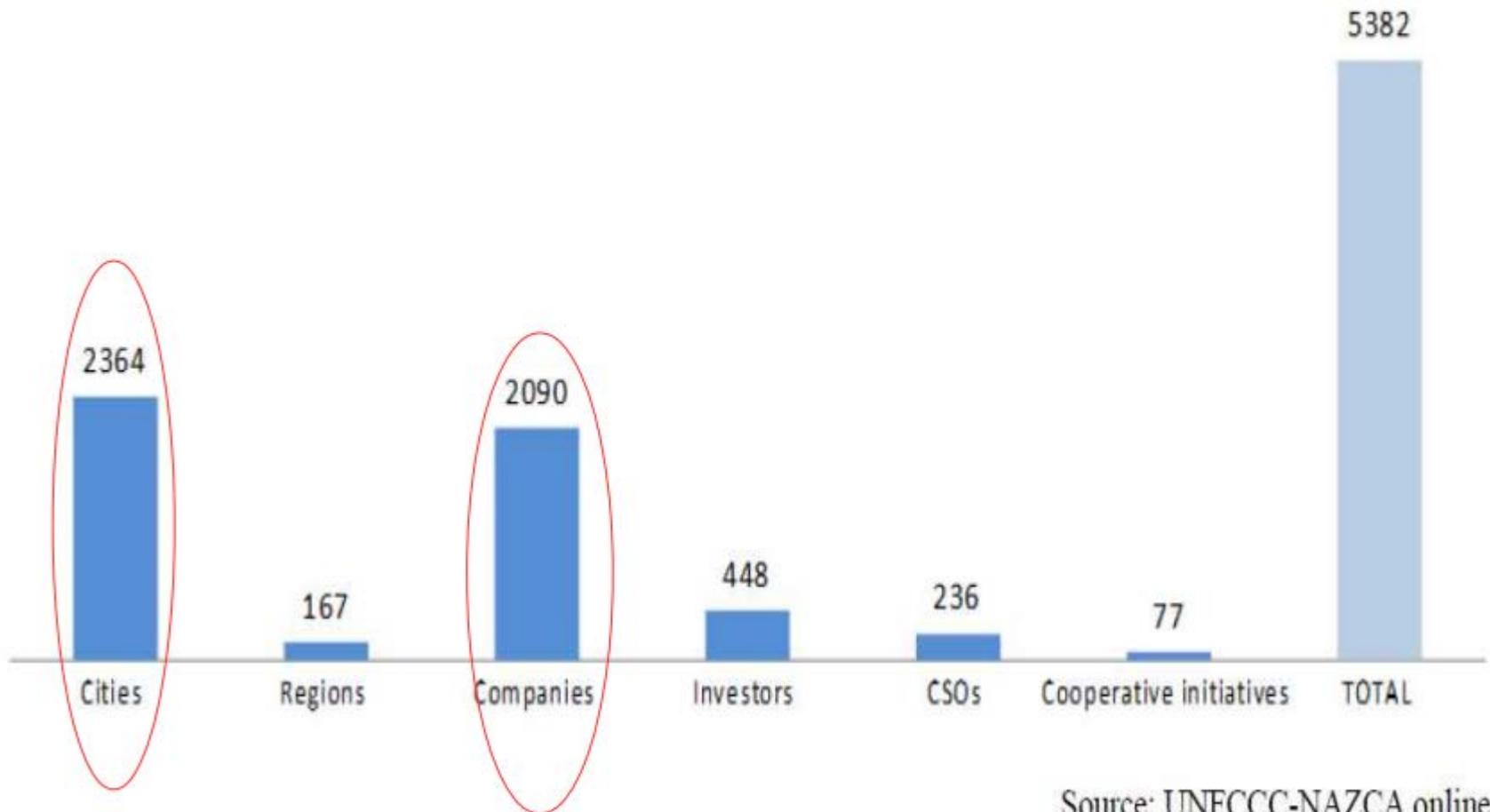


Climate change - NAZCA / LPAA %



Source: UNFCCC-NAZCA online, 2016

NAZCA commitments to action under UNFCCC (#, by type of implementing NSA)



Source: UNFCCC-NAZCA online, 2016

Which public policies for private adaptation?

- How to encourage NSA to provide climate public adaptation goods in front a demand for more resilient communities?
- **Call for solidarity and good citizenship:** new social contract motivating individuals to cooperate (governance)
- **Use of self-interest as motivation for cooperation:** to be promoted through financial and informational incentives and compensations in front of expected losses

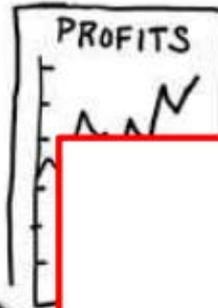
Requirements may include:

- Monetary valuation of benefits from the resulting differential of resilience
- Market creation for adaptation benefits (shares or “payment for adaptation services”): beneficiaries pay the ones bearing direct adaptation costs (credits)
- Motivational regulation through public policies and spending (programs and policies: GPP etc.)
- Market mechanisms & economic incentives (e.g. “tradable vulnerability credits”)

Conclusions

- **Growing commitment (scarce) of NSA on adaptation** with limited contribution to private provision of climate adaptation goods
- **Limited rationality in the private provision** (“satisficing” à la H.Simon)
- **Private provision mainly due to absolute scarcity of earmarked public contribution and individual choice** (e.g. CSR, self-interest)
- **Plurality of NSA** (business, local governments, finance) requires **diversified incentives** to spur action
- **Room for new financial tools** incentivising private adaptation and leveraging private capital markets
- **Availability of promising information tools** (reporting) to be refined for allowing for a partial quantification of adaptation efforts
- **Scattered public support** to private adaptation (EIB, EBRD)
- **Need for sound analyses** pushing policy makers to incentivise private provision of climate adaptation (see: mitigation) especially in those sectors where there is a high economic efficiency of private provision

MEGA
MANUFACTURING
INC.



GLOBAL
WARMING
CAUSES
FLOODING

CHRIS
MADDEN



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“Quick – diversify into boats!”